

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A vacuum extraction unit for a device used to engrave a relief into the surface of a workpiece, in particular into a printing element such as for example a flexographic printing element, by means of radiation, in particular laser radiation, the workpiece being a cylinder or a plate which is arranged on a cylinder during the engraving, with

-a hood, which covers a region of interaction between the radiation and the workpiece surface and comprises a vacuum extraction channel, the inlet opening of which lies opposite the workpiece surface in the operating position of the hood and can be connected to a vacuum extraction line, and

-a C-shaped cover ring with two ends that follow the circumference of the workpiece and are located at a distance from each other, and has a substantially U-shaped cross section to form an annular channel between the cover ring and the workpiece, the hood being arranged adjacent one of the two circumferential ends of the cover ring and extraction means being provided at the other circumferential ~~end~~end,

wherein the extraction means are provided to remove abrasion and/or decomposition products captured in the annular channel of the cover ring.

2. (Previously Presented) The vacuum extraction unit as claimed in claim 1, wherein the C-shaped cover ring is exchangeable.

3. (Previously Presented) The vacuum extraction unit as claimed in claim 1, wherein the side walls of the C-shaped cover ring are provided with means for reducing its free inside diameter; so that said ring can be set to correspond to the diameter of the cylindrical workpiece respectively to be processed.

4. (Previously Presented) The vacuum extraction unit as claimed in claim 3, wherein the means for reducing the free inside diameter of the C-shaped cover ring comprise a lamellar seal.

5. (Previously Presented) The vacuum extraction unit as claimed in claim 4, wherein the individual lamellae of the lamellar seal are pivotably fastened to the side walls of the cover ring.

6. (Previously Presented) The vacuum extraction unit as claimed in claim 3, wherein the means for reducing the free inside diameter of the C-shaped cover ring comprise exchangeable side parts, in particular side plates.

7. (Previously Presented) The vacuum extraction unit as claimed in claim 1, wherein the C-shaped cover ring is circumferentially subdivided into at least two ring segments, which are pivotably held against each other.

8. (Previously Presented) The vacuum extraction unit as claimed in claim 7, wherein the C-shaped cover ring is circumferentially subdivided into three ring segments of different circumferential lengths, the circumferential length of an upper ring segment corresponding approximately to half the circumferential length of the cover ring, while the lower ring portion has two shorter ring segments.

9. (Previously Presented) The vacuum extraction unit as claimed in claim 1, wherein a vacuum extraction nozzle is arranged as extraction means in an intermediate space between the hood and the other circumferential end of the C-shaped cover ring that is located upstream of the hood.

10. (Previously Presented) The vacuum extraction unit as claimed in claim 1, wherein the hood has

- a rear side to which a vacuum extraction line can be connected,
- two side walls, which have end edges which lie opposite the workpiece in the operating position of the hood, and
- two directing walls, which are located between the side walls, extend transversely in relation to the latter and which together with the two side walls delimit the vacuum extraction channel in the hood, an edge of one of the two directing walls lying opposite the workpiece in the operating position of the hood, while the other directing wall has a convex, cylindrical curvature lying opposite the workpiece surface in the operating position of the hood and, in the region of this curvature, at least one opening, through which the radiation for processing the workpiece surface is guided.

11. (Previously Presented) The vacuum extraction unit as claimed in claim 1, wherein the hood

--has a rear side, to which a vacuum extraction line can be connected,

--two side walls, which have end edges with a contour which is adapted to the contour of the surface of a workpiece to be processed, so that corresponding gap seals are formed when the end edges lie opposite the workpiece in the operating position of the hood, and

--two directing walls, which are located between the side walls, extend transversely in relation to the latter and which together with the two side walls delimit the vacuum extraction channel in the hood, the hood being provided with an opening, through which the radiation for processing the workpiece surface is guided.

12. (Previously Presented) The vacuum extraction unit as claimed in claim 11, wherein an edge of one of the two directing walls lies opposite the workpiece in the operating position of the hood, while the other directing wall has a convex, cylindrical curvature lying opposite the workpiece surface in the operating position of the hood and in that the at least one opening, through which the radiation for processing the workpiece surface is guided, is arranged in the region of the curvature of the other directing wall.

13. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein the curvature of the curved directing wall is curved in the form of an arc of a circle.

14. (Previously Presented) The vacuum extraction unit as claimed in claim 13, wherein the curving of the curvature of the curved directing wall is greater than the curving of the surface of the workpiece.

15. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein the curvature of the curved directing wall is exponentially curved.

16. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein the opening or openings through which the radiation for processing the workpiece is guided

is/are provided in the region of the curved directing wall that lies closest to the surface of the workpiece in the operating position of the hood.

17. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein the end edges of the side walls have a contour which is adapted to the contour of the surface of a workpiece to be processed, so that corresponding gap seals are formed.

18. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein the contour of the end edges of the side walls is a polyline that is adapted to the contour of the workpiece surface.

19. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein the contour of the end edges of the side walls is an arc of a circle that is adapted to the contour of the workpiece surface.

20. (Previously Presented) The vacuum extraction unit as claimed in claim 11, wherein the distance between the end edges of the side walls and the workpiece surface in the operating position of the hood is less than 50 mm, preferably less than 30 mm, in particular less than 10 mm but greater than 0.5 mm.

21. (Previously Presented) The vacuum extraction unit as claimed in claim 11, wherein the width of the gap seals formed between the end edges of the side walls and the workpiece surface lies in the range between 0.1 mm and 30 mm.

22. (Previously Presented) The vacuum extraction unit as claimed in claim 11, wherein the hood is exchangeably fastened to a processing head, so that when processing cylindrical workpieces with different diameters a hood from a number of hoods is respectively chosen and fastened to the processing head, the side walls of which hood have end edges with a contour which is adapted as well as possible to the contour of the surface of the workpiece respectively to be processed.

23. (Previously Presented) The vacuum extraction unit as claimed in claim 11, wherein the side walls of the hood are provided with means, in particular movable lamellae or exchangeable side parts, by which the contour of the edges of the side walls that lie opposite a workpiece can be changed in order to adapt them to the surface of the workpiece.

24. (Previously Presented) The vacuum extraction unit as claimed in claim 10, wherein, in the region of the curved directing wall that lies closest to the surface of the workpiece in the operating position of the hood, each working jet or beam, in particular working laser beam, delivered by a processing head is provided with an opening of its own, through which the radiation for processing the workpiece is focused on the latter.